



# COMMUNITY AIR MONITORING PLAN

**Jewett White Lead Site  
Staten Island, New York**

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## **Introduction**

This Community Air Monitoring Plan (CAMP) is prepared for the Removal Action being implemented by the United States Environmental Protection Agency (EPA) at the Jewett White Lead Site ("the Site") located at 2000-2012 Richmond Terrace in Staten Island, Richmond County, New York. The Site is identified in the Staten Island Tax Assessors Office as Block 1006, Lots 32 and 18. The Site is delineated by Richmond Terrace, Park Ave, and an abandoned railway easement. The Site is located within the Port Richmond neighborhood of Staten Island's North Shore and is bordered by the following businesses; to the north/east is Moran Towing, to the east is Reinauer Transportation, to the west by vacant commercial space and a NYC MTA bus resting area, and to the south a residential neighborhood. An abandoned railway easement to the south buffers the Site from the residential properties. About 8,200 people reside or work within a ½ mile radius from the Site.

This CAMP outlines the air quality monitoring procedures to be followed to protect the surrounding community from potential airborne contaminant releases during the implementation of the removal action at the Site. This CAMP is consistent with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan.

The primary contaminant of concern on the Site is lead in dust. Historical operations on the Site included the production of white lead. Analytical results of surface and subsurface soil samples collected from the Site indicated the presence of elemental lead at elevated levels. With the selected remedy for the Site being excavation and off-site disposal, the possibility exists that dust emissions from the site could contain elevated levels of lead if engineering controls are not properly implement.

While Volatile and Semivolatile Organic Compounds (VOCs/SVOCs) have not been identified as contaminants of concern, EPA will still conduct on-site operational screening for these compounds in the event conditions change.

## **Scope of Work**

The duration of the removal action is projected to be from October 1, 2012 through January 17, 2012. The removal action work on Site will include clearing and grubbing of site vegetation along with excavation and removal of soil containing elevated levels of lead. Clearing and grubbing will be done in a manner that will not disturb existing soils. Once the site clearing operations have been completed, EPA will proceed with digging several test pits around the site. Materials from these test pits will be collected and analyzed to develop a disposal profile for the Site soil. Once the test pits and sampling are completed, excavation of soil will begin. A Site grid has been developed and will be utilized during the excavation activities. Soil will be excavated on a grid by grid basis and stockpiled either by grid or by disposal profile when that data is

available from sampling. Soil stockpiles will be managed on site and dust suppression measures will be implemented for all stockpiles and excavation activities. Upon determination of waste profiles, stockpiled soils will be shipped off-site for disposal. Off-site shipment will involve the loading of tri-axle dump trucks which will be covered with a canvas tarp prior to leaving the site. The tarp will be secured to prevent dust from blowing out of the trucks. EPA estimates 6000 to 8000 cubic yards of soil will be excavated and shipped off-site for disposal.

### **Engineering Controls**

Dust control measures, utilizing a water fog, will be the primary engineering control during all site intrusive activities. It will be implemented as necessary to prevent the generation of dust during excavation and handling operations. It will utilize non-potable water to wet the surfaces of all stockpiles, loading areas, access roads, and areas being excavated. A temporary travel road will be constructed on-site using crushed stone, and/or the use of poly mats to prevent vehicles entering/leaving the site from contacting contaminated soil. If/when a vehicle or heavy equipment becomes impacted by contaminated soil, that vehicle or equipment will be decontaminated prior to being allowed off-site. When clean fill areas are established, actions will be implemented to utilize those clean areas for site traffic.

### **Monitoring and Sampling Procedures for Intrusive Activities**

The CAMP is designed to protect off-site pedestrians, residences and businesses as well as on-site workers. The CAMP addresses the monitoring and sampling to be performed during intrusive and/or potential dust generating activities on-site. It discusses the equipment and methods to be used during monitoring and sample activities as well as mitigating actions to be taken if action levels are reached or exceeded.

#### **Work Zone Air Monitoring**

Work zone air monitoring for worker health and safety will be performed continuously during all intrusive activities. Intrusive activities include but are not limited to; soil excavation and handling, road clearing/construction, as well as activities involving the loading and transporting of soil off-site. The monitoring results within this zone will be utilized by the on-site Health and Safety Officer to evaluate personal protective equipment (PPE) and the effectiveness of engineering controls. Additional information related to work zone air monitoring will be found in the Health and Safety Plan for the Site.

#### **Perimeter Air Monitoring**

Perimeter air monitoring will consist of real-time air quality monitoring and data collection on a continuous basis. Monitoring location will be in a circular path which will extend from the area of intrusive site activity with an emphasis towards the downwind direction. Meteorological data

consisting of wind speed, wind direction, temperature, and barometric pressure will be recorded each day to position the monitoring equipments in appropriate upwind and downwind locations. All air monitoring data with time current activity and the locations of monitoring equipment will be recorded in the onsite files and will be available for review. Meteorological data will be acquired from either an on-site meteorological station or other online weather data service such as [www.weather.com](http://www.weather.com) and/or [www.wunderground.com](http://www.wunderground.com).

### **Particulate Monitoring, Response and Actions**

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone. Locations will be determined each day based on current site activities and meteorological conditions. The particulate monitoring will be performed using DustTrak® Aerosol real-time monitoring equipment (or other equivalent unit) capable of measuring particulate matter less than 10 micrometers in size (PM<sub>10</sub>) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The dust monitor will be equipped with an easy-to-read digital display that shows real-time concentrations in milligrams per cubic meter (mg/m<sup>3</sup>) over a selected timeframe while data is simultaneously logged into memory. This instrument will be utilized to determine whether dust suppression measures are being adequately implemented on site. In addition, observations for fugitive dust migration will be visually assessed during all work activities. While it is planned to implement physical dust suppression controls throughout the Site operations, should elevated levels of dust be observed, the following actions will be taken.

A dust concentration, measured by the PM<sub>10</sub> concentration, of 0.063 mg/m<sup>3</sup> has been established as the site-specific action level for this community air monitoring program. This site-specific action level was calculated using the following equation, which calculates a corresponding PM<sub>10</sub> action level for contaminated dust for worker exposure limit based on the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) and contaminant concentration on Site, then dividing the result by a safety factor.

$$\text{PM}_{10} \text{ Action Level (mg/m}^3\text{)} = \frac{(10^6 \text{ mg/kg})(\text{OSHA PEL mg/m}^3\text{)}}{(\text{Concentration mg/kg})(\text{Safety Factor})}$$

Where:

$10^6 \text{ mg/kg}$  = conversion factor

OSHA Action Level for Lead =  $0.03 \text{ mg/m}^3$  (8-hour TWA)

Concentration = highest concentration detected at the Site (240,000 milligrams per kilograms [mg/kg])

Safety Factor = degree of confidence of concentration, 1 being very confident and 10 being not confident

$$\begin{aligned} \text{PM}_{10} \text{ Action Level (mg/m}^3\text{)} &= \frac{(10^6 \text{ mg/kg})(0.03 \text{ mg/m}^3\text{)}}{(240,000 \text{ mg/kg})(2)} \\ &= 0.063 \text{ mg/m}^3 \text{ (63 } \mu\text{g/m}^3\text{)} \end{aligned}$$

- The calculated action level is conservative and assumes that the Site contaminant (Lead) will be present in airborne dust at the highest concentration detected in Site soils (240,000 mg/kg). If dust levels exceed  $0.063 \text{ mg/m}^3$ , operations that are directly generating dust in the area of the impacted monitoring station will be temporarily discontinued until dust mitigation action can be performed. An early warning alert level of  $0.030 \text{ mg/m}^3$  (below one half of the action level) has been established for the Site. If this alert level is reached, the field crew will continue work and dust suppression, and be notified that the work is generating dust at the early warning level.
- If the downwind  $\text{PM}_{10}$  particulate level is  $0.030 \text{ mg/m}^3$  greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then work may temporarily cease and dust suppression measures will be re-evaluated to assure adequate implementation. Work may continue with dust suppression measures provided that downwind  $\text{PM}_{10}$  particulate levels do not exceed  $0.063 \text{ mg/m}^3$  above the upwind level and provided that no visible dust is migrating from the work area.
- If after the initial re-evaluation of dust suppression techniques, downwind  $\text{PM}_{10}$  particulate levels are greater than  $0.063 \text{ mg/m}^3$  above the upwind level, work will be stopped and a re-evaluation of intrusive activities initiated. Work will resume provided that dust suppression measures and/or other controls are successful in reducing the downwind  $\text{PM}_{10}$  particulate concentration to within  $0.063 \text{ mg/m}^3$  of the upwind level and in preventing visible dust migration.

### **Volatile Organic Compounds (VOCs) Monitoring, Response and Actions**

During previous Removal Site Evaluation activities, VOCs have not been identified as contaminants of concern. However, monitoring for VOCs will be conducted on site, at the work area, when new operations commence or other factors indicate the potential for VOC emissions from site activities. If VOCs are detected within materials excavated and/or a source is identified within an excavation, initial VOC monitoring, using a portable field Photoionization Detector (PID), will be implemented to assess the levels of VOCs. If levels at the source exceed 5ppm above background for more than 15 minutes, additional assessment will be conducted further downwind from the source. If levels exceed 5 parts per million (ppm) for a period of at least 15 minutes at points less than  $\frac{1}{2}$  the distance from source to site boundary, continuous site perimeter monitoring will be implemented for VOCs.

If continuous VOC monitoring is required, upwind concentrations beyond the work zone will be measured at the start of each workday and periodically thereafter to establish background conditions. The VOC monitoring work will be performed using AreaRae®, Multi-Gas Detector from Rae Systems a PID. The AreaRae® gas monitor is a gas detector equipped with a wireless radio frequency modem which allows the unit to communicate and transmit readings on a real time basis with a remotely located base controller. If VOC monitoring is implemented, the equipment will be calibrated daily and records will be maintained. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 ppm above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm above background, work activities will be halted, the source of vapors will be identified, corrective actions will be taken to abate emissions, and monitoring will be continued. After taking corrective action, work activities can resume provided that the total organic vapor level 100 feet downwind of the exclusion zone or half the distance to the nearest site perimeter boundary, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- All 15-minute readings will be recorded and maintained in the on-site file. Instantaneous readings, if any, used for decision purposes will also be recorded.

### **Perimeter Air Sampling**

Perimeter air sampling will involve the collection of air via SKC or Gillian type low flow sample pumps throughout the work day. Samples will be placed in a radial pattern which will extend from the area of intrusive site activity with more emphasis being at the downwind locations. Sample locations will be co-located with monitoring equipment and air sampling data will be utilized to support/verify particulate monitoring data and action levels. Air sampling data is not instantaneous or direct reading. Depending on the type of analysis being conducted, actual results may not be available for several days.

### **Lead Dust Air Sampling, Response and Actions**

Air sampling for lead dust will be conducted on a daily basis during intrusive site activities. Samples will be collected and analyzed following the NIOSH 7300 (ICP-AES) method (or EPA/CLP equivalent). This method utilizes low flow sampling pumps to collect a known volume of air on a filter. Collected samples are then analyzed using Flame Atomic Absorption Spectrophotometer analysis. All samples will be analyzed at an EPA Contract Lab (CLP) or an accredited commercial laboratory. EPA will be requesting standard turn-around-times for samples unless air monitoring data for the day showed elevated levels of particulates for that day.

- The Occupational Safety and Health Administration (OSHA) has a Permissible Exposure Level (PEL) of  $0.05 \text{ mg/m}^3$  for lead dust. That is the level at which the OSHA Rule does not allow a "worker" to be exposed over an 8 hr period. The PEL is an 8 hr Time Weighted Average (TWA) sample.
- OSHA has an "Action Level" for lead in air within the construction industry standard. That action level is set at  $0.03 \text{ mg/m}^3$ . If the action level is exceeded, but less than the PEL of  $0.05 \text{ mg/m}^3$ , additional sampling and evaluation is required.
- As part of the Site Health and Safety Plan, additional occupational sampling for lead will be required for most site specific tasks. Analytical results from the sampling of different site specific tasks will also be evaluated to assure lead levels "on-site" are controlled to the best extent possible. That data will also assist with the assessment(s) of potential for off-site migration.
- If any perimeter lead sampling results exceeds  $0.015 \text{ mg/m}^3$ , or one-half the OSHA Action Level of  $0.03 \text{ mg/m}^3$ , all intrusive work on site will be shut down and a full evaluation of the cause will be conducted. If the evaluation indicates on-site activities contributed to the elevated levels of lead in the sample results, a remedy will be developed and implemented prior to the commencement of work activities.



**Table 1: Contaminants of Concern with Action Levels and Actions**

Contaminant of Concern	Perimeter Action Level	Action
Dust (PM <sub>10</sub> )	$\geq 0.030 \text{ mg/m}^3$ *	<b>Early Warning Level</b> – Continue monitoring. Continue dust suppression measures, Notify field crew that early warning alert level has been reached.
	$\leq 0.063 \text{ mg/m}^3$ *	Continue monitoring, Continue dust suppression measures.
	$\geq 0.063 \text{ mg/m}^3$ *	Suspend operations and evaluate site activities and engineering controls. Operations may continue if controls appropriate and levels do not exceed $60 \mu\text{g/m}^3$ above upwind levels at site perimeter.
Lead in Dust	$0.015 \text{ mg/m}^3$ **	Suspend operations, evaluate site activities and engineering controls, develop and implement remedy prior to commencement of work activities.
VOCs ***	5 ppm *	Suspend operations, investigate potential source, evaluate site operations
<p>* 15 minute sustained reading  ** Result of 8 hr Time Weighted Average sample  *** VOC monitoring will be conducted on site as part of site activities. VOCs are not anticipated as being a contaminant of concern. If VOCs are detected and determined to present a potential off-site threat, continuous monitoring for VOCs will be implemented along the perimeter of the site.</p>		